DEFENSE INFORMATION SYSTEMS AGENCY
JOINT INTEROPERABILITY TEST COMMAND
FORT HUACHUCA, ARIZONA 85613-7020

IN REPLY REFER TO C2 and Combat Support
Systems Department (JTDB)

MEMORANDUM FOR NATIONAL IMAGERY AND MAPPING AGENCY
ATTN: SEIT, JOE WESDOCK

SUBJECT: Status Report on the Image Access Service Specification Validation Testing

1. The National Imagery and Mapping Agency (NIMA) requested the Joint Interoperability Test Command (JITC) develop and conduct a validation test for the Common Imagery Interoperability Working Group's (CIIWG) Image Access Service (IAS) Specification version 1.1. The IAS was specialized with the Image Access Service Specification Validation Test Profile (5 March 1997), a subset of the Common Imagery Interoperability Profile (13 March 1997).

2. JITC discovered several discrepancies in the IAS specification as a result of the validation testing. The IAS specification validation cannot be fully completed until the Validation Issues have been resolved and re-tested.

3. JITC does not intend to publish a Validation Report for the IAS since the IAS will be expanded into the Geospatial Information Access Service (GIAS). We recommend the lessons learned from the validation testing serve as input into the GIAS development and validation effort. As an intermediate specification the IAS is a good basis for the GIAS specification.

4. Testing was conducted at the CACI in Fairfax, VA, 14 - 18 April 1997, Lockheed Martin in Sunnyvale, CA, 21 April - 7 May 1997, and University of California Santa Barbara, CA, on 5 May 1997. Enclosure 1 shows the systems implemented and the test configurations. Discrepancies regarding the IAS specification are described in Enclosure 2. Contained in Enclosure 3 are the Test Incident Reports which describe lessons learned and implementation issues.

5. Enclosure 4 is a summary of the testing coverage for the candidate criteria as described in the Validation Test Plan for CIIWG's IAS Specification version 1.1. The scenarios in the test plan were sufficient for validation testing but need to be revised for testing of production systems. Methods not fully implemented could only be evaluated for method arguments, no evaluation was conducted for each argument's ability to adequately accomplish the method's purpose.

6. Point of contact is Stephen W. Kerr, Open Systems Division, DSN 879-5154, commercial (520) 538-5154.

FOR THE COMMANDER:

4 Enclosures:
1 Test Configuration
2 Validation Issues
3 Test Incident Reports
4 Criteria Coverage Summary

STEVE E. BRIDGES
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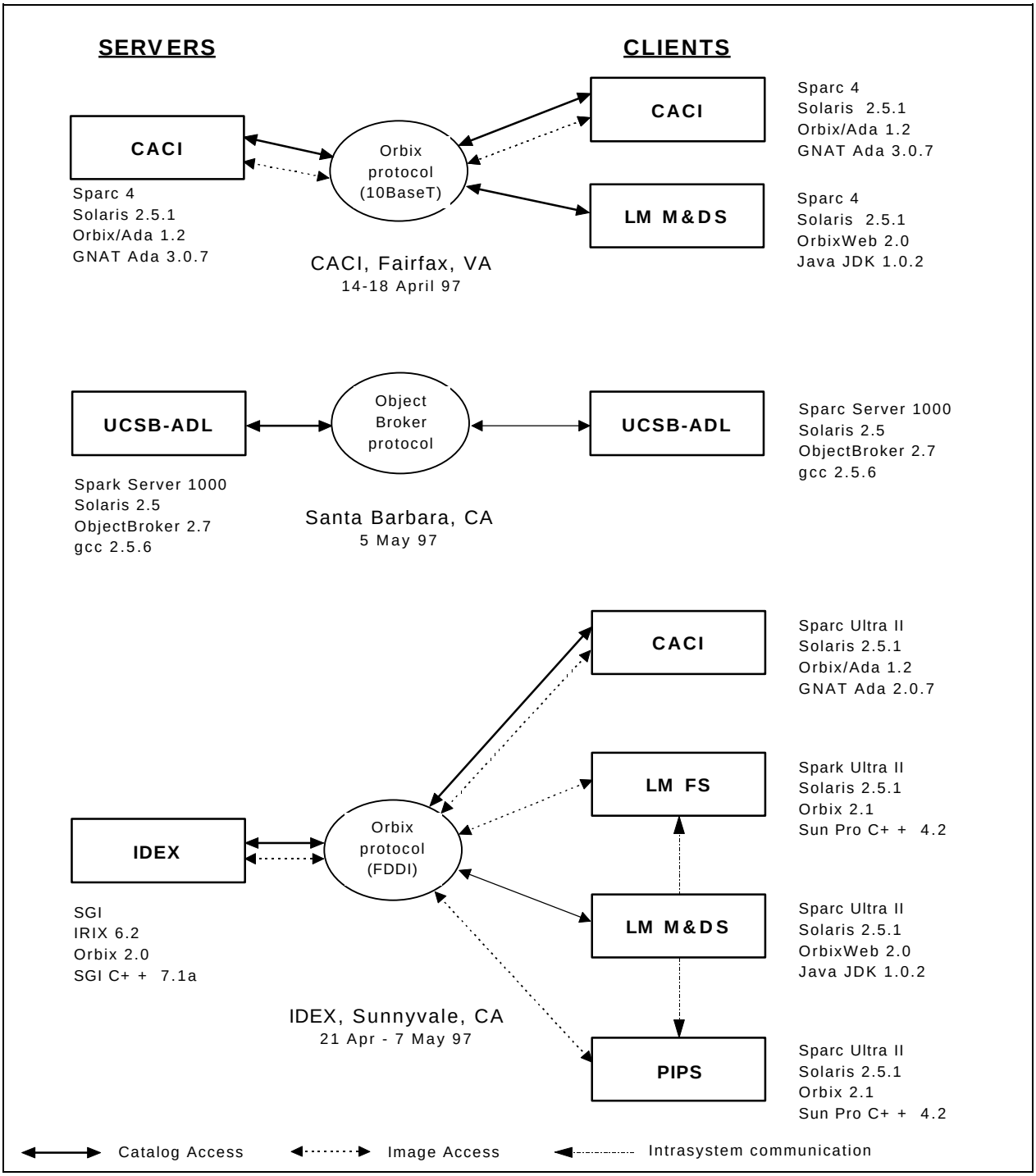

Test Configuration

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** ProductRRDS Conflict.
2. **ISSUE NUMBER:** 1
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:** The following inconsistency was found:
   ProductRRDS IAS defines as unsigned long.
   CIIP defines as sequence<unsigned long>.

9. **CONCLUSION:** The above items have simple solutions and can be easily resolved.
10. **RECOMMENDATION:** Recommended changing the IAS to match the CIIP
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** ImageExceptionInfo Content is not testable.
2. **ISSUE NUMBER:** 2
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:** The content of the ImageExceptionInfo data type is not testable since the IAS indicates the use of the member fields is implementation defined.

9. **CONCLUSION:** If clients are to use these fields then the content of the fields must be described for interoperability.
10. **RECOMMENDATION:** Describe the contents of the fields in the IAS or CIIP.
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** ImageExceptionInfo description is ambiguous.
2. **ISSUE NUMBER:** 3
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:** The description for the use of the ImageExceptionInfo data type is ambiguous. First sentence indicates all IAS implementations to populate the exception_info with the ImageExceptionInfo for all operations. Last sentence indicates only the IAF will use this structure for returning user exceptions.

9. **CONCLUSION:** This can be interpreted to only mean the Image Access Interface used the ImageExceptionInfo for the exception_info.
10. **RECOMMENDATION:** Remove last sentence.
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** Uniqueness of QueryId
2. **ISSUE NUMBER:** 4
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:** The QueryId was reused by the CACI server after it had been freed by the client. This caused a problem with the LMC-VF client which cached the state of the QueryIds. The issue at hand is what is a unique QueryId. Is it unique at a point in time, during a session, or over all time? For a server that implements persistent queries the latter must be true.

9. **CONCLUSION:** QueryId's need to be unique over all time.
10. **RECOMMENDATION:** Amend specification to state this.
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** Parameters Interface
2. **ISSUE NUMBER:** 5
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:** The IAS/CIIP do not define what parameters of the Parameters Interface influence what methods of its interface.

9. **CONCLUSION:** As stated in discussion.
10. **RECOMMENDATION:** Update the document(s) to show what parameters are applicable to what methods and what the acceptable values are for the parameters.
11. **RESOLUTION:** To be resolve in GIAS specification.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** Pixel description.
2. **ISSUE NUMBER:** 6
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:** The CIIP does not sufficiently define how the pixels are represented in the RegionData. The Test CIIP defines the RegionData as uncompressed 8-bit gray scale or color (RGB) pixel interleave. Other things that need to be considered 11-bit gray scale, lookup tables, 8-bit color, 24-bit color with different interleave schemes.

9. **CONCLUSION:** Pixels are not sufficiently defined.
10. **RECOMMENDATION:** Update the CIIP to further define the pixels.
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** Multiple r-sets with single image file formats.
2. **ISSUE NUMBER:** 7
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:** How are multiple reduced resolution data sets (ProductRRDS) returned in a single image file format is specified? NITF can contain multiple images, and TFRD has a file naming convention for naming the multiple files. This applies to the disseminate and get_subimage methods.

9. **CONCLUSION:** Specification needs to specify policy.
10. **RECOMMENDATION:** For Get_subimage, multiple RRDSs should not be returned. Investigate further and resolve in update.
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** File formats used in create()
2. **ISSUE NUMBER:** 8
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:** How is the image file represented for the create() operation? For create IDEX uses the convention where the image file and metadata file on the hard disk are concatenated together. If these files were not together, the server may need to know the file formats to determine what file(s) to get. For example, consistent file name extensions.

9. **CONCLUSION:** Specification needs to specify policy.
10. **RECOMMENDATION:** For the create () operation, client should be able to stipulate the format of the data from those supported. If these formats do not include embedded metadata, then the attributes have to also be provided with the create () operation. Clarify details in update.
11. **RESOLUTION:** Forthcoming

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** Password protection
2. **ISSUE NUMBER:** 9
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:** The open_criteria argument of the open() method may provide a security risk. The password is passed in the clear (not encrypted). This could be intercepted from the IIOP protocol and exploited.
   Note, the test monitor displayed the current password as entered.

9. **CONCLUSION:** Password encryption needs to be specified in the profile.
10. **RECOMMENDATION:** Develop password protection policy.
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** UserId and Password consistency
2. **ISSUE NUMBER:** 10
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:** The open_criteria uses “UserID” and “Password” for the open() method. The get/set_parameters() method on the ImageProduct use “username” and “password” in the context.

9. **CONCLUSION:** The user name and password are inconsistent between methods and could be misinterpreted.
10. **RECOMMENDATION:** Change the user name and password of the get/set_parameters() to be consistent with the open_criteria.
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** Region retrieval pixel depth
2. **ISSUE NUMBER:** 11
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:** The pixel depth for get_region() and get_multiple_regions() was defined as 8-bit gray scale for the validation testing. Many systems can provide the data in other formats and the capability is not available for the client to request the format of the pixels. For example IDEX can provide the pixels in 8 or 11 bit gray scale. The parameters ProductDataFormat and ProductCompression could specify this but their current values are for full products.

9. **CONCLUSION:** A means of requesting a region format can be achieved.
10. **RECOMMENDATION:** Develop a means of requesting setting a region format.
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** ImageProduct permissions.
2. **ISSUE NUMBER:** 12
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:** The ImageProduct interface uses the context information for the user name and password for the get/set_parameters() methods. The specification does not define how the server is to treat a call made with out the appropriate permissions.

9. **CONCLUSION:** Without this specified the servers may throw exceptions that are not expected by the client, or throw an exception that misleads the client as to what the problem really was.
10. **RECOMMENDATION:** Add the exception NO_PERMISSIONS to the text of the get/set_permissions() method descriptions.
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** RegionData content.
2. **ISSUE NUMBER:** 13
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:**

   The specifications do not indicate what is to be in the region_spec of the browse image. This structure member is used in the get_region() and get_multiple_regions() with the DisplayRegionSpec and TileRegionSpec respectively, but these are not applicable to the browse image. At a test planning meeting it was decided that this member would not be used for the browse image.

   The CIIP specifies the region header to contain "NROWS", "NCOLS", "PixelDepth" in the format N8, N8, N2 respectively. This was interpreted as both a number and a string representation of a number. The size of a region can be obtained from 2 places in the RegionData of a get_multiple_regions(). They are contained in the horizontal_size and vertical_size of the TileRegionSpec and the "NROWS" and "NCOLS" of the region_header. It was recommended that this be a unsigned long since this is what is stored in the server which would have to convert it to a string then the client would have to convert it back to a number.

   The size of the actual browse image may be less than the 1024x1024 with fill pixels filling the remainder of the image.

   What is contained in the RegionData when no browse image is returned?

9. **CONCLUSION:** The RegionData needs more description.
10. **RECOMMENDATION:**

    Use the TileRegionSpec for the region_spec of the RegionData for all returned images, including the browse image. This eliminates the duplication of information in the TileRegionSpec and the NROWS and NCOLS of the region_header and any ambiguity for the type of the NROWS and NCOLS.

    Allow the browse image to be less than 1024x1024 to reduce bandwidth for transferring the fill pixels.

    Use zero length sequences for the RegionData data structure when no browse image is transferred.

11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** Meaning of the LibraryReference
2. **ISSUE NUMBER:** 14
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:**
   The ImageProduct maintains a parameter LibraryReference which is of type IA. It is unclear what this represents. In the case of IDEX this is a reference to itself, but the object reference for ones self is transitory, i.e. the object is dynamically created and only exists for the duration of that clients session. The LibraryReference could be an Image Access object that is not a "local" interface but an interface to some other archive.

   In the validation testing the clients connected to Image Access and Catalog Access interface pairs and the LibraryReference was unused. That is a product returned by a catalog query was assumed to be accessable by the "local" Image Access interface.

   If the Catalog and Image Access servers are not co-located who creates and manages the ImageProduct?

9. **CONCLUSION:** The meaning of what the LibraryReference points to can be implemented in a number of ways.
10. **RECOMMENDATION:** The ImageProduct LibraryReference must be unique to support the mode where a particular Library only maintains metadata and source data is maintained elsewhere. Clarify details in update.
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** Region size and resolution.
2. **ISSUE NUMBER:** 15
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:**
   The definition of the region size and resolution level need to be expanded to clarify how the horizontal and vertical size, and resolution level relate the image and returned pixels.

9. **CONCLUSION:** See discussion.
10. **RECOMMENDATION:** The center point, around which the horizontal and vertical size is taken, should be taken from the original image (R0). The horizontal and vertical size need to be the number of pixels, horizontal and vertical, returned after the reduction to the requested r-set has been done.
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** Polygon closure.
2. **ISSUE NUMBER:** 16
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:**
   The specification does not state whether the last and first points of the GeoCoordList and the same or whether the server closes the first and last points.

9. **CONCLUSION:** See discussion.
10. **RECOMMENDATION:** Standard convention is that last point of polygon corresponds to first point and this is designated by client. Do not believe we want server to do this. Have client close polygon. Clarify in update.
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** Cancel()'s return type.
2. **ISSUE NUMBER:** 17
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:**
   The use of the enumeration CompletionState as the return type by the cancel() method has the potential to be misinterpreted since the enumeration has more values than are used by the cancel() method.

   Also, the returned value "COMPLETED" has two meanings, the cancel was successful, and the transfer was already complete and the cancel() method was unable to cancel the transfer.

9. **CONCLUSION:** See discussion.
10. **RECOMMENDATION:** Explicitly enumerate CompletionState values that apply. Also, explicitly distinguish between the cancel was successful versus the transfer was completed and cancel() was unable to cancel the transfer.
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** Table 4-2
2. **ISSUE NUMBER:** 18
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:**
   IAS Table 4-2 lists "Child of Parameters" which is not consistent with its column title.

9. **CONCLUSION:** See discussion.
10. **RECOMMENDATION:** Recommend replacing this with "All" or a listing of the applicable interfaces, "IA, CA, ImageProduct"
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** RequestIdList mapping
2. **ISSUE NUMBER:** 19
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:**
   The returned RequestIdList for disseminate() does not specify how the entries in the returned RequestIdList are mapped to which FileLocationSpec.

9. **CONCLUSION:** There is no way to guarantee which RequestId is associated with which FileLocationSpec.
10. **RECOMMENDATION:** Specify the RequestIdList is in the same order as the FileLocationSpecList.
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** Buffer union member names
2. **ISSUE NUMBER:** 20
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:**
   The IDL for the Buffer union maps the enumeration BYTEDATA to the union member ubyte_data and the SBYTEDATA to the member byte_data. This provides significant room for incorrect implementation since it is very easy to code the enumeration BYTEDATA to the union byte_data instead of ubyte_data. To avoid any confusion, recommend changing the enumerations and the union member names to match, for example BYTEDATA to UBYTEDATA and the union member byte_data to sbyte_data. The same is recommended for 2 and 4 byte integers.

9. **CONCLUSION:** The names of the Buffer union names can easily lead to programmer error.
10. **RECOMMENDATION:** See discussion.
11. **RESOLUTION:** Forthcoming.

IAS VALIDATION ISSUE

1. **ISSUE TITLE:** SupportData and SDEs.
2. **ISSUE NUMBER:** 21
3. **VERSION NUMBER:** 1
4. **DATE:** 1 June 97
5. **ACTION ORGANIZATION:** NIMA
6. **POINTS OF CONTACT:** Dave Mann, JITC. 520-538-5494
7. **STATUS:** OPEN
8. **DISCUSSION:**
   SupportData is listed as N/A in the Test CIIP but was omitted from the CIIP for the ImageProduct.

   All SDEs do not need to be returned with each region request. SDE's only needs to be returned once for a product. Give the client the ability to select which SDE it wants or needs. For example, tie the retrieval mechanism of the SDEs with a parameter like the SupportData of the ImageProduct

9. **CONCLUSION:** The SDEs are not yet fully solidified.
10. **RECOMMENDATION:** Further review.
11. **RESOLUTION:** Forthcoming.

TIR NUMBER: 1 **DATE**: 1 June 97

TEST INCIDENT REPORT

IAS 1.1 VALIDATION TEST

TEST SCENARIO: ALL **CRITERIA**: ALL

RELATED TIRs: N/A

DESCRIPTION:
Used Orbix Native Protocol for entire test. Orbix/Ada and Orbix 2.0 for SGI did not support IIOP.

IMPACT:
Unable to validate if IIOP is sufficient to support the interfaces.

RECOMMENDATION:
Use next releases of software that support IIOP at next round of testing.

_____Dave Mann_____
TEST DIRECTOR

_____
CORRECTIVE ACTION:

CLOSED: _____ _____
TEST DIRECTOR DATE

TIR NUMBER: 2 **DATE**: 1 June 97

TEST INCIDENT REPORT

IAS 1.1 VALIDATION TEST

TEST SCENARIO: ALL **CRITERIA**: **C-21.2.3n**

RELATED TIRs: N/A

DESCRIPTION:
PIPS needed the complete size of image to process the tiles. This is normally provided by the ImageProduct parameter ReferenceAttributes which was not implemented by IDEX so PIPS hard coded the image size.

IMPACT:
Unable to validate the ReferenceAttributes parameter of the ImageProduct.

RECOMMENDATION:
Ensure clients and servers support ReferenceAttributes at the next round of testing.

_____Dave Mann_____
TEST DIRECTOR

_____
CORRECTIVE ACTION:

CLOSED: _____ _____
TEST DIRECTOR DATE

TIR NUMBER: 3 **DATE**: 1 June 97

TEST INCIDENT REPORT

IAS 1.1 VALIDATION TEST

TEST SCENARIO: 5 **CRITERIA**: **C-21.2.3**

RELATED TIRs: 2

DESCRIPTION:
No servers or clients implemented the following parameters for the ImageProduct.
Library Reference
ReferenceAttributes

IMPACT:
Unable to validate all parameters for the ImageProduct.

RECOMMENDATION:
Ensure clients and servers fully support the ImageProduct parameters at the next round of testing

_____Dave Mann_____
TEST DIRECTOR

_____
CORRECTIVE ACTION:

CLOSED: _____ _____
TEST DIRECTOR DATE

TIR NUMBER: 4 **DATE**: 1 June 97

TEST INCIDENT REPORT

IAS 1.1 VALIDATION TEST

TEST SCENARIO: 5 **CRITERIA**: **C-36.2.1g**

RELATED TIRs: n/a

DESCRIPTION:
No clients implemented the display of the browse image returned with the query results.

IMPACT:
Unable to validate that the browse image description is sufficient. The data structure that contains the browse image is the same as the pixels returned with the get_region() method.

RECOMMENDATION:
Ensure clients and servers fully support the browse images at the next round of testing.

_____Dave Mann_____
TEST DIRECTOR

_____
CORRECTIVE ACTION:

CLOSED: _____ _____
TEST DIRECTOR DATE

TIR NUMBER: 5 **DATE**: 1 June 97

TEST INCIDENT REPORT

IAS 1.1 VALIDATION TEST

TEST SCENARIO: 1,6 **CRITERIA**: **C-1,2,25,26,**

RELATED TIRs: n/a

DESCRIPTION:
No server implemented the disseminate() or get_subimage() in a data format or compression in other than the format it was currently stored.

IMPACT:
The interface for these methods can only be validated for the transfer of information across the interface and not that there was sufficient information to accomplish the task.

RECOMMENDATION:
Ensure clients and servers fully support the disseminate() and get_subimage() methods at the next round of testing.

_____Dave Mann_____
TEST DIRECTOR

_____
CORRECTIVE ACTION:

CLOSED: _____ _____
TEST DIRECTOR DATE

TIR NUMBER: 6 **DATE**: 1 June 97

TEST INCIDENT REPORT

IAS 1.1 VALIDATION TEST

TEST SCENARIO: 1 **CRITERIA**: **C-1.2.1b**

RELATED TIRs: n/a

DESCRIPTION:
No servers implemented disseminate with response service of QUEUED.

IMPACT:
Unable to validate response service of QUEUED.

RECOMMENDATION:
Ensure clients and servers support the response service of QUEUED at the next round of testing

_____Dave Mann_____
TEST DIRECTOR

_____
CORRECTIVE ACTION:

CLOSED: _____ _____
TEST DIRECTOR DATE

TIR NUMBER: 7 **DATE**: 1 June 97

TEST INCIDENT REPORT

IAS 1.1 VALIDATION TEST

TEST SCENARIO: All **CRITERIA**: **All**

RELATED TIRs: n/a

DESCRIPTION:
Some exceptions were not tested because the client or server implementations were not capable of generating the required conditions. The following exceptions were not tested:

BadAttibute
BadEllipse
BadProductReference
BadQueryValue
BadRegionData
ProductUnavailable
TooManyRequests

IMPACT:
Minimal impact. With desktop review these should not break the specification.

RECOMMENDATION:
Accept the exceptions as stated.

_____Dave Mann_____
TEST DIRECTOR

_____
CORRECTIVE ACTION:

CLOSED: _____ _____
TEST DIRECTOR DATE

TIR NUMBER: 8 **DATE**: 1 June 97

TEST INCIDENT REPORT

IAS 1.1 VALIDATION TEST

TEST SCENARIO: all **CRITERIA**: **n/a**

RELATED TIRs: n/a

DESCRIPTION:
Ada limits the information contained within an exception to 200 bytes. This includes any overhead incurred with CORBA. The type information associated with the CORBA any and the structure ImageExceptionInfo uses up a large portion of the 200 bytes.

IMPACT:
Very little information can be contained in the ImageExceptionInfo data structure. Currently the content of the data structure is implementation defined, but if this becomes defined in the specification this will be an issue.

RECOMMENDATION:
Review and recommend changes to OMG/ORB vendors on increases to exception size.

_____Dave Mann_____
TEST DIRECTOR

_____
CORRECTIVE ACTION:

CLOSED: _____ _____
TEST DIRECTOR DATE

TIR NUMBER: 9 **DATE**: 1 June 97

TEST INCIDENT REPORT

IAS 1.1 VALIDATION TEST

TEST SCENARIO: 5 **CRITERIA**: C-22.2.1b

RELATED TIRs: n/a

DESCRIPTION:
LM M&DS client had a problem extracting a value from a NameValueList within a NameValueList, (ParameterNames, QueryableAttributes). The information was extracted when operating in the IIOP protocol but not in the Orbix native protocol. The Orbix/Ada currently does not operate with the IIOP protocol.

IMPACT:
This appears to be only within the OrbixWeb java language mappings.

RECOMMENDATION:
Product unique problems. Should be resolved with CORBA 2.0 compliant products with IIOP support. Check newer version of the OrbixWeb product.

_____Dave Mann_____
TEST DIRECTOR

_____
CORRECTIVE ACTION:

CLOSED: _____ _____
TEST DIRECTOR DATE

TIR NUMBER: 10 **DATE**: 1 June 97

TEST INCIDENT REPORT

IAS 1.1 VALIDATION TEST

TEST SCENARIO: 3,7-10 **CRITERIA**: C-13-15

RELATED TIRs: n/a

DESCRIPTION:
GNAT Ada had problems with variant records within the union of the Buffer data type. To get this to work for testing the server had to set Buffer data to BITDATA, and the client had to retrieve the received BITDATA as BYTEDATA.

IMPACT:
Expect this to be a problem with this Ada compiler.

RECOMMENDATION:
Product unique problem. Developers ensure the Ada compiler used can adequately support the Ada mappings of the Buffer data type.

_____Dave Mann_____
TEST DIRECTOR

_____
CORRECTIVE ACTION:

CLOSED: _____ _____
TEST DIRECTOR DATE

TIR NUMBER: 11 **DATE**: 1 June 97

TEST INCIDENT REPORT

IAS 1.1 VALIDATION TEST

TEST SCENARIO: 5 **CRITERIA**: C-21-24

RELATED TIRs: n/a

DESCRIPTION:
The CACI implementation for set_parameters() sets some parameters until a invalid parameter is discovered then an exception is raised. At this point some states are set and some are not.

Is this acceptable?
What about other methods?

IMPACT:
After an exception has been raised the state of the server may be undefined.

RECOMMENDATION:
Establish a policy at to the state of a server after an exception has been raised.

_____Dave Mann_____
TEST DIRECTOR

_____
CORRECTIVE ACTION:

CLOSED: _____ _____
TEST DIRECTOR DATE

TIR NUMBER: 12 **DATE**: 1 June 97

TEST INCIDENT REPORT

IAS 1.1 VALIDATION TEST

TEST SCENARIO: 7 **CRITERIA**: C-27.2.2

RELATED TIRs: n/a

DESCRIPTION:
The ODBC used by CACI did not provide enough information to discriminate what was invalid about a query. They just raised the exception BadQuerySyntax. Other possible exceptions are BadAttribute and BadQueryValue.

IMPACT:
If the client queues on the exception to identify what part of the query was bad, only throwing the BadQuerySyntax exception would mislead the client as to what was wrong with the client.

RECOMMENDATION:
Servers should return explicit exceptions as to why a query is invalid. Also, expect client to check query parameters before submittal. Clarify and resolve in updates.

_____Dave Mann_____
TEST DIRECTOR

_____
CORRECTIVE ACTION:

CLOSED: _____ _____
TEST DIRECTOR DATE

TIR NUMBER: 13 **DATE**: 1 June 97

TEST INCIDENT REPORT

IAS 1.1 VALIDATION TEST

TEST SCENARIO: n/a **CRITERIA**: n/a

RELATED TIRs: n/a

DESCRIPTION:
Stub and skeleton code generated by the IDL compiler for Orbix 2.1 on Solaris does not work when compiled on Orbix 2.0 on SGI. There are differences between the method's argument types when mapped from IDL to C++.

IMPACT:
Porting software between versions may not be as straight forward as may be expected.

RECOMMENDATION:
Compiler incompatibilities. Advise vendors. CORBA 2.0 compliant compilers should resolve this issue.

_____Dave Mann_____
TEST DIRECTOR

_____
CORRECTIVE ACTION:

CLOSED: _____ _____
TEST DIRECTOR DATE

TIR NUMBER: 14 **DATE**: 1 June 97

TEST INCIDENT REPORT

IAS 1.1 VALIDATION TEST

TEST SCENARIO: All **CRITERIA**: All

RELATED TIRs: n/a

DESCRIPTION:
Problems arise when mixing IIOP and Orbix native protocol and when object references are passed from the server to the client, then back to the server or when the client invokes operations on these object references. It seems object references can be converted from the native protocol to IIOP object references, but cannot be adequately converted from IIOP object references back to Orbix native protocol object references.

The implication here is that one protocol, IIOP or native must be used throughout the interface.
The monitor as a bridge between the Orbix native protocol and IIOP so far has worked sufficiently when just converting the call arguments, but conversion of object references is a problem.

IMPACT:
The protocol must be the same for all players in the interface.

RECOMMENDATION:
If IIOP and native protocols are used a bridge must be developed that maps IIOP to and from native protocol.

_____Dave Mann_____
TEST DIRECTOR

_____
CORRECTIVE ACTION:

CLOSED: _____ _____
TEST DIRECTOR DATE

TIR NUMBER: 15 **DATE**: 1 June 97

TEST INCIDENT REPORT

IAS 1.1 VALIDATION TEST

TEST SCENARIO: All **CRITERIA**: All

RELATED TIRs: n/a

DESCRIPTION:
The PIPS client from LMC-FS uses the SupportData parameter of the ImageProduct to the ESD data from IDEX. This is in a sequence<octet>. The data was in raw ESD format and was coordinated directly between PIPS and IDEX. The Test CIIP currently defines the SupportData as N/A. The CIIP has omitted the SupportData parameter and the SDEs are described as part of the region_header.

IMPACT:
The use of special parameters and formats makes the interface non interoperable.

RECOMMENDATION:
Define the interface support data such that no special arrangements need to be made to transfer the data.

_____Dave Mann_____
TEST DIRECTOR

_____
CORRECTIVE ACTION:

CLOSED: _____ _____
TEST DIRECTOR DATE

Subtest 1, Server Disseminate()

SUBTEST 1, SERVER DISSEMINATE()						
Criteria		Test System				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality.						
a. Disseminate product to one or more destinations	X	X	X			
b. Disseminate product with response service:						
(1) IMMEDIATE	X	X	X			
(2) QUEUED	X	NI	NI			
c. A valid list of request IDs is returned	X	X	X			
2. Method Exceptions:						
a. BadProductReference	X	NT	NT			
b. BadLocationSpec	X	X	X			
c. ResponseServiceNotAvailable	X	X	X			
d. TooManyRequests						
e. BAD_INV_ORDER						
3. Parameters Interface:						
a. Disseminate with ProductCompression:						
(1) “UNC”, “NITF20” only	X	3,4	NI,4			
(2) “JPEG8”, “NITF20” only	X	3,4	NI,4			
(3) “JPEG12”, “NITF20”	X	3,4	NI,4			

(4) "TFRD43", TFRD only	X	NI,4	X,4			
b. Disseminate with ProductDataFormat:						
(1) "NITF20"	X	X,4	NI,4			
(2) "TFRD"	X	NI,4	X,4			
c. GeographicDatum not used.						
d. Disseminate with ProductRRDS set to requested	X	1	2			

NT Not Tested; unable to test, could not generate required conditions, or omitted.
NI Not implemented.
1. CACI implemented as stated in the IAS, unsigned long.
2. IDEX implemented as stated in the CIIP, sequence<unsigned long>. At classified testing disseminate() and get_subimage() were accumplished using only IDEX default of R0.
3. CACI disseminate() and get_subimage() in whatever format the image was created.
4. Since implementations did not do format and compression conversions this capability was not validated, just that the information was passed.

Subtest 2, Client Disseminate()

SUBTEST 2, CLIENT DISSEMINATE()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Request dissemination of product to one/more destinations	X	X		X		
b. Request dessemination with response service:						
(1) IMMEDIATE	X	X		X		
(2) QUEUED	X	X		X		
c. Returned request IDs used to track progress	X	X		X		
2. Method Exceptions:						
a. BadProductReference	X	NT		NT		
b. BadLocationSpec	X	X		X		
c. ResponseServiceNotAvailable	X	X		X		
d. TooManyRequests						
e. BAD_INV_ORDER						
3. Parameters Interface:						
a. Request dissemination with ProductCompression set to:						
(1) “UNC, “NITF20” only	X	X		NI		
(2) “JPEG8, “NITF20” only	X	NT		NI		

(3) “JPEG12”, “NITF20” only	X	NT		NI		
(4) “TFRD43”, “TFRD” only	X	NI		X		
b. Disseminate with ProductDataFormat:						
(1) “NITF20”	X	X		NI		
(2) “TFRD”	X	NI		X		
c. GeographicDatum” not used.						
d. Disseminate with ProductRRDS set to resolutions	X	1		1		

1. See notes 1,2 in Subtest 1.

Subtest 3, Server Check_Completion()

SUBTEST 3, SERVER CHECK_COMPLETION()						
Criteria		Test System				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Status of disseminate request is returned to user	X	X	X			
b. Status of create request is returned to the user	X	X	X			
c. Status of get_subimage request is returned to user	X	X	X			
d. Status COMPLETED returned when transfer is complete	X	X	X			
e. Status IN_PROGRESS returned when transfer is ongoing	X	X	X			
f. Status ABORTED returned when transfer is aborted						
g. Status CANCELED returned when transfer is canceled	X	X	X			
h. Status PENDING returned when transfer is awaiting service	X	NI	NI			
i. Status OTHER returned when ((TBD))						
j. Reason limited to not more than 80 characters.	X	X	X			
2. Method Exceptions:						
a. BadRequestId	X	X	X			
b. BAD_INV_ORDER						
3. Parameters Interface: None.						

Subtest 4, Client Check_Completion()

SUBTEST 4, CLIENT CHECK_COMPLETION()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Use previous disseminate RequestId to determine status	X	X		X		
b. Use previous create call to determine status	X	X		X		
c. Use previous get_subimage call to determine status	X	X		X		
d. COMPLETED status displayed when transfer completed	X	X		X		
e. IN_PROGRESS status displayed when transfer is ongoing	X	X		X		
f. ABORTED status displayed when transfer is aborted						
g. CANCELED status displayed when transfer is canceled	X	X		X		
h. PENDING status displayed when transfer is awaiting service	X	NI		NI		
i. OTHER status displayed when ((TBD))						
j. Reason limited to not more than 80 characters.	X	X		X		
2. Method Exceptions:						
a. BadRequestId	X	X		X		
b. BAD_INV_ORDER						
3. Parameters Interface: None.						

Subtest 5, Server Cancel()

SUBTEST 5, SERVER CANCEL()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Dissemination request is terminated by client	X	X	X			
b. Creation request is terminated by client	X	X	1			
c. Get_subimage request is terminated by the client	X	X	X			
d. Status COMPLETED returned when complete	X	X	X			
e. Status ABORTED returned when transfer is aborted						
2. Method Exceptions:						
a. BadRequestId	X	X	X			
b. BAD_INV_ORDER						
3. Parameters Interface: None.						

1. IDEX blocks until complete. Not tested.

Subtest 6, Client Cancel()

SUBTEST 6, CLIENT CANCEL()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Use requestID from previous dissemination to cancel terminated by client	X	X		X		
b. Use request ID from previous create to cancel	X	X		1		
c. Use request ID from previous get_subimage to cancel	X	X		NI		
d. COMPLETED status displayed when complete	X	X		X		
e. ABORTED status displayed when transfer is aborted						
2. Method Exceptions:						
a. BadRequestId	X	X		X		
b. BAD_INV_ORDER						
3. Parameters Interface: None.						

1. See note 1, Subtest 5.

Subtest 7, Server Create()

SUBTEST 7, SERVER CREATE()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Image product's LocationSpec is created in server's library	X	X	1			
b. Creation_attribute metadata is saved in the library	X	X	X			
c. A valid request id is returned	X	X	X			
d. A valid product reference is returned	X	NT	NT			
2. Method Exceptions:						
a. BadCreationAttributes	X	X	X			
b. BadLocationSpec	X	X	X			
b. BAD_INV_ORDER	X	2	2			
3. Parameters Interface: None.						

1. File was moved to local file system. IDEX scripted response does not allow verification by query.
2. Used get_parameters() to test this.

Subtest 8, Client Create()

SUBTEST 8, CLIENT CREATE()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Request creation of product in library of image file	X	X		X		
b. Creation_attribute metadata specified for files w/o metadata	X	X		X		
c. Returned request id used to check complete or cancel	X	X		X		
d. Returned product reference used with other methods	X	NI		NI		
2. Method Exceptions:						
a. BadCreationAttributes	X	X		X		
b. BadLocationSpec	X	X		X		
b. BAD_INV_ORDER	X	1		1		
3. Parameters Interface: None.						

1. Used get_parameters() to test this.

Subtest 9, Server Open_Array()

SUBTEST 9, SERVER OPEN_ARRAY()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Open_array is called before others in array request interface	X		X			
b. Parameter access_kind is unused	X		X			
2. Method Exceptions:						
a. BadProductReference	X		NI			
b. ProductUnavailable	X		1			
c. BAD_INV_ORDER						
3. Parameters Interface: None.						

1. IDEX threw BadProductReference verses ProductUnavailable.

Subtest 10, Client Open_Array()

SUBTEST 10, CLIENT OPEN_ARRAY()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Open_array is called before others in array request interface	X	X		X		X
b. Parameter access_kind is N/A	X	X		X		X
2. Method Exceptions:						
a. BadProductReference	X	NT		1		
b. ProductUnavailable	X	NT		NT		
c. BAD_INV_ORDER						
3. Parameters Interface: None.						

1. See note 1, subtest 9.

Subtest 11, Server Close_Array()

SUBTEST 11, SERVER CLOSE_ARRAY()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Close_array is called after others in array request interface	X		X			
2. Method Exceptions:						
a. BadProductReference	X		NT			
b. ArrayNotOpen	X		X			
c. BAD_INV_ORDER						
3. Parameters Interface: None.						

Subtest 12, Client Close_Array()

SUBTEST 12, CLIENT CLOSE_ARRAY()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Close_array is called after others in array request interface	X	X		X		
2. Method Exceptions:						
a. BadProductReference	X	NT		NT		
b. ArrayNotOpen	X	X		X		
c. BAD_INV_ORDER						
3. Parameters Interface: None.						

Subtest 13, Server Get_Region()

SUBTEST 13, SERVER GET_REGION()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Provides pixel data from array product based on region_spec	X		X			
b. The RegionData returns region_spec and region_data	X		X			
c. The region_spec parameter is specialized with DisplayRegion Data type	X		X			
d. The region_header NameValueList contain the entries :						
(1) "NCOLS"	X		X			
(2) "NROWS"	X		X			
(3) "PixelDepth"	X		X			
2. Method Exceptions:						
a. BadProductReference	X		NT			
b. BadRegionSpec	X		X			
c. BadRegionData (when Compression Not Available)	NT					
d. BadRegionData (when Format Not Available)	NT					
e. ArrayNotOpen	X		1			
f. BAD_INV_ORDER						
3. Parameters Interface:						
a. RegionParameters structure contains size and resolution data	X		X			

b. ProductCompression, not used. Data is uncompressed.	X		X			
c. ProductDataFormat, not used.						
d. Region data optimized by HorzMotionRate & VertMotionRate						
e. SupportData, not used.	2		X			

1. IDEX did not throw exception. They treat all image products as an array.
2. IDEX provides SDE data in SupportData of the ImageProduct for PIPS.

Subtest 14, Client Get_Region()

SUBTEST 14, CLIENT GET_REGION()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Provides x-y center coordinates in DisplayRegionSpec	X	X		X		X
b. The RegionData returned is region_spec and region_data	X	X		X		X
c. The region-header NameValueList contains the entries:						
(1) "NCOLS"	X	X		X		X
(2) "NROWS"	X	X		X		X
(3) "PixelDepth"	X	X		X		X
2. Method Exceptions:						
a. BadProductReference	X	NT		NT		
b. BadRegionSpec	X	X		X		
c. BadRegionData (when Compression Not Available)	NT					
d. BadRegionData (when Format Not Available)	NT					
e. ArrayNotOpen	X	1		1		
f. BAD_INV_ORDER						
3. Parameters Interface:						
a. Request size and resolution data in RegionParameters	X	X		X		X
b. ProductCompression, not used. Data is uncompressed.	X	X		X		X
c. ProductDataFormat, not used.						

d. Provide indication of future region requests in HorizMotionRate and VertMotionRate						
e. SupportData, not used.	2			X		4

1,2 See notes in Subtest 13.
3. CACI did not set display color map for gray scale.
4. IDEX provided for PIPS the support data in raw ESD format. This is not documented in the specification.

Subtest 15, Server Get_Mutiple_Regions()

SUBTEST 15, SERVER GET_MULTIPLE_REGIONS()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Provides multi-region pixel data based on region_spec list	X		X			
b.The list of region data returns region_spec and region data	X		X			
c. The region_spec is specialized with TileRegionSpec data	X		X			
d. The region_header NameValueList contains the entries:						
(1) "NCOLS"	X		X			
(2) "NROWS"	X		X			
(3) "PixelDepth"	X		X			
2. Method Exceptions:						
a. BadProductReference	X		NT			
b. BadRegionSpec	X		X			
c. BadRegionData (when Compression Not Available)	NT					
d. BadRegionData (when Format Not Available)	NT					
e. ArrayNotOpen	X		1			
f. BAD_INV_ORDER						
3. Parameters Interface:						
a. ProductCompression, not used. Data is uncompressed.	X		X			
b. ProductDataFormat, not used.						

c. Region Data optimized by HorzMotionRate & VertMotionRate						
d. SupportData, not used.	2		X			

1,2 See notes in Subtest 13.

Subtest 16, Client Get_Mutiple_Regions()

SUBTEST 16, CLIENT GET_MULTIPLE_REGIONS()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Provide x-y center, size, and resolution in TileRegionSpec	X	X		X		X
b. The list of region data returns region_spec and region data	X	X		X		X
c. The region_header NameValueList contains the entries:						
(1) "NCOLS"	X	X		X		X
(2) "NROWS"	X	X		X		X
(3) "PixelDepth"	X	X		X		X
2. Method Exceptions:						
a. BadProductReference	X	NT		NT		
b. BadRegionSpec	X	X		X		
c. BadRegionData	X	NT		NT		
d. ArrayNotOpen	X	1		1		
e. BAD_INV_ORDER						
3. Parameters Interface:						
a. ProductCompression, not used. Data is uncompressed.	X	X		X		X
b. ProductDataFormat, not used.						
d. Provide indication of future region requests in HorizMotionRate and VertMotionRate						
d. SupportData, not used.	2			X		4

1,2,3 See notes is Subtest 13.
4 IDEX provided for PIPS the support data in raw ESD format. This is not documented in the specification.

Subtest 17, Server Open()

SUBTEST 17, SERVER OPEN()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Connection opened with valid user identity and password	X	X	X	X		
b. No operations performed prior to invocation of open method	X	X	X	X		
2. Method Exceptions:						
a. AlreadyConnected	X	X	X	X		
b. BadOpenCriteria	X	X	X	NT		
c. NO_PERMISSION	X	X	NI	X		
3. Parameters Interface: None						

Subtest 18, Client Open()

SUBTEST 18, CLIENT OPEN()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Provides valid open_criteria with user identity and password	X	X	X	X	X	X
b. No operations performed prior to invocation of open method	X	X	X	X	X	X
2. Method Exceptions:						
a. AlreadyConnected	X	NT	X	X	X	
b. BadOpenCriteria	X	NT	X	X	NT	
c. NO_PERMISSION	X	X	X	NT	X	
3. Parameters Interface: None						

Subtest 19, Server Close()

SUBTEST 19, SERVER CLOSE()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Closes the connection	X	X	X	X		
b. No operations performed after invocation of close method	X	X	X	X		
2. Method Exceptions:						
a. NoConnectionEstablished	X	X	X	X		
3. Parameters Interface: None						

Subtest 20, Client Close()

SUBTEST 20, CLIENT CLOSE()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Requests to close connection	X	X	X	X	X	
b. No operations performed after invocation of close method	X	X	X	X	X	
2. Method Exceptions:						
a. NoConnectionEstablished	X	NT	X	X	X	
3. Parameters Interface: None						

Subtest 21, Server Get_Parameters()

SUBTEST 21, SERVER GET_PARAMETERS()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. List of requested parameters & associated values is provided	X	X	X	X		
b. ImageProduct uses username/password in ContextInfo.	X	NI	X			
2. Method Exceptions:						
a. BadName	X	X	X	X		
b. BAD_INV_ORDER	3	X	4	X		
3. Parameters Interface:						
a. ResultAttributes lists attributes returned by catalog queries	X	X	X	X		
b. Provide GeographicDatum as WGS84	X	X	X	X		
c. Provide requested reduced resolution sets in ProductRRDS	X	1	1			
d. Provide horizontal/vertical sizes & resolution in RegionParameters	X	X	X			
e. Provide one of the following in ProductCompression:						
(1) “UNC”, “NITF20” only	X	X	NI			
(2) “JPEG8”, “NITF20” only	X	X	NI			
(3) “JPEG12”, “NITF20” only	X	X	NI			
(4) “TFRD43”, “TFRD20” only	X	X	X			
f. Provide one of the following in ProductDataFormat:						

(1) “NITF20”	X	X	NI			
(2) “TFRD”	X	X	X			
g. Provide horizontal direction in HorizMotionRate	NT					
h. Provide vertical direction in VertMotionRate	NT					
i. SupportData, not used.	2		X			
j. InterfacesSupported, not used.						
k. Provide available catalog attributes in AvailableAttributes	X	X	X	X		
l. Provide queryable attributes in QueryableAttributes	X	X	X	X		
m. Provide max polygon vertices in MaxPolygonVertices	X	X	X	X		
n. Provide following key attributes in ReferenceAttributes:						
(1) “NROWS”	X	NI	NI			
(2) “NCOLS”	X	NI	NI			
o. ArrayProduct true for an array image	X	NI	X			
p. Provide library location in LibraryReference	X	NI	NI			
q. Provide list of available parameters in ParameterNames	X	X	X	X		
r. Provide current setting of BrowseImageReturned	X	X	X	X		

1. See notes 1,2 Subtest 1.
2. IDEX implemented for PIPS.
3. Get_parameters() used instead of create()/disseminate() Scenario 4.
4. IDEX threw NO_PERMISSIONS verses BAD_INV_ORDER.

Subtest 22, Client Get_Parameters()

SUBTEST 22, CLIENT GET_PARAMETERS()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Requests a list of parameters	X	X	X	X	X	
b. The parameters names in the set:						
(1) ResultAttributes	X	X	X		X	
(2) BrowserImageReturned	X	X	X		X	
(3) GeographicDatum	X	X	X		X	
(4) ProductRRDS	X	1	1			
(5) RegionParameters	X	X				
(6) ProductCompression	X	X				
(7) ProductFormat	X	X				
(8) InterfacesSupported, not used.						
(9) AvailableAttributes	X	X	X		X	
(10) QueryableAttributes	X	X	X		X	
(11) MaxPolygonVertices	X	X	X		X	
(12) ReferenceAttributes	X	NT				
(13) ArrayProduct	X	NT		X		X
(14) LibraryReference	X	NT				
(15) ParameterNames	X	X	X		X	

(16) SupportData, not used.	2			X		X
c. ImageProduct uses username/password in ContextInfo.	X	X				X
2. Method Exceptions:						
a. BadName	X	X	NT	NT	X	
b. BAD_INV_ORDER	3	X	X	NT	X	
3. Parameters Interface: None						

Notes same as Subtest 21.

Subtest 23, Server Set_Parameters()

SUBTEST 23, SERVER SET_PARAMETERS()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Allow changes to client-specific parameters only	X	X	1	X		
b. ImageProduct uses username/password in ContextInfo.	X	NI	X			
2. Method Exceptions:						
a. BadName	X	X	X	X		
b. BadValue	X	X	X	X		
c. CannotSet	X	X	1	X		
d. BAD_INV_ORDER						
3. Parameters Interface:						
a. ResultAttributes lists attributes returned by catalog queries	X	X	X	X		
b. Provide GeographicDatum as “WGS84”	X	X	X	X		
c. Provide requested reduced resolution sets in ProductRRDS	X	2	2			
d. Provide horizontal/vertical sizes & resolution in RegionParameters	X	X	X			
e. Provide one of the following in ProductCompression:						
(1) “UNC”, “NITF20” only	X	X	NI			
(2) “JPEG8”, “NITF20” only	X	X	NI			
(3) “JPEG12”, “NITF20” only	X	X	NI			

(4) “TFRD43”, “TFRD” only	X	X	X			
f. Provide one of the following in ProductDataFormat:						
(1) “NITF20”	X	X	NI			
(2) “TFRD”	X	X	X			
g. Provide horizontal direction in HorizMotionRate						
h. Provide vertical direction in VertMotionRate						
i. Set BrowseImageReturned	X	X	X	X		

1. IDEX allows all parameters as settable.
2. Same as note 1&2, Subtest 1.

Subtest 24, Client Set_Parameters()

SUBTEST 24, CLIENT SET_PARAMETERS()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Requests changes to list of parameters	X	X	X	X	X	X
b. ImageProduct uses username/password in ContextInfo.	NT					
2. Method Exceptions:						
a. BadName	X	X	NT	NT	X	
b. BadValue	X	X	X	X	X	
c. CannotSet	X	X	X	NT	X	
d. BAD_INV_ORDER						
3. Parameters Interface:						
a. Sets ResultAttributes to those returned by catalog queries	X	X	X		X	X
b. Sets GeographicDatum to “WGS84”	X	X	X	X	X	
c. Request reduced resolution sets in ProductRRDS	X	1		1		
d. Set horizontal/vertical sizes & resolution in RegionParameters	X	X		X		
e. Set one of the following in ProductCompression:						
(1) “UNC”, “NITF20” only	X	X		X		
(2) “JPEG8”, “NITF20” only	X	X		X		
(3) “JPEG12”, “NITF20” only	X	X		X		

(4) “TFRD43”, “TFRD” only	X	X		X		
f. Set one of the following in ProductDataFormat:						
(1) “NITF20”	X	X		X		
(2) “TFRD”	X	X		X		
g. Set horizontal direction in HorizMotionRate						
h. Set vertical direction in VertMotionRate						
i. Provide current setting of BrowseImageReturned	X	X	X		X	

1. See notes 1,2 in Subtest 1.

Subtest 25, Server Get_Subimage()

SUBTEST 25, SERVER GET_SUBIMAGE()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Subimage encompasses bounding box (unless unavailable)	X	1	1			
b. Upper_left parameter defines the NW corner of bounding box	X	X	X			
c. Lower_right parameter defines the SE corner of bounding box	X	X	X			
d. Location parameter defines where product is transferred	X	X	X			
e. A valid unique RequestId is returned	X	X	X			
2. Method Exceptions:						
a. BadCoord (unacceptable coordinate)	X	NT	NI			
b. BadCoord (no bounding box coverage))	X	X	NI			
c. BadProductReference	X	NT	NT			
d. BadLocationSpec	X	X	X			
e. TooManyRequests						
f. BadRegionData when data requested is in the wrong format	X	X	NT			
g. BadRegionData when data compression is unavailable	X	X	NT			
h. BAD_INV_ORDER						
3. Parameters Interface:						
a. Generate subimage with ProductDataFormat set to:						

(1) “NITF20”	X	X,4	NI,4			
(2) “TFRD”	X	NI,4	X,4			
b. Generate subimage with ProductCompression set to:						
(1) “UNC”, “NITF20” only.	X	3,4	NI,4			
(2) “JPEG8”, “NITF20” only.	X	3,4	NI,4			
(3) “JPEG12”, “NITF20” only.	X	3,4	NI,4			
(4) “TFRD43”, “TFRD” only.	X	NI,4	X,4			
c. Generate subimage with ProductRDDS	X	2	2			
d. Generate subimage with GeographicDatum set to “WGS84”						

1. Actual image chip not created. Full product was transferred.
2. See note 1,2 in Subtest 1.
3. Transfer is in the same format as what the image was created.
4. Since implementations did not do format and compression conversions this capability was not validated, just that the information was passed.

Subtest 26, Client Get_Subimage()

SUBTEST 26, CLIENT GET_SUBIMAGE()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Requests a portion of specified image product	X	X				
b. Upper_left parameter defines the NW corner of bounding box	X	X				
c. Lower_right parameter defines the SE corner of bounding box	X	X				
d. Returned RequestIds are used to monitor progress of request	X	X				
2. Method Exceptions:						
a. BadCoord	X	X				
b. BadProductReference	X	NT				
c. BadLocationSpec	X	X				
d. TooManyRequests						
e. BadRegionData	X	X				
f. BAD_INV_ORDER						
3. Parameters Interface:						
a. Set ProductDataFormat to:						
(1) NITF20”	X	X				
(2) TFRD”	X	NT				
b. Set ProductCompression to:						
(1) “UNC”, “NITF20” only	X	X				

(2) “JPEG8”, “NITF20” only	X	X				
(3) “JPEG12”, “NITF20” only	X	X				
(4) “TFRD43”, “TFRD” only	X	NT				
c. Set ProductRDDS	X	1				
d. Set GeographicDatum to “WGS84”	X	X				

1. See note 1,2 Subtest 1.

Subtest 27, Server Boolean_Query()

SUBTEST 27, SERVER BOOLEAN_QUERY()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Returns valid QueryId with data specified in Boolean query	X	X	X	X		
2. Method Exceptions:						
a. BadQuerySyntax (when illegal syntax)	X	1	2	3		
b. BadQuerySyntax (when improper operation applied)	X	1	2	3		
c. BadAttribute		1	2	3		
d. BadQueryValue		1	2	3		
e. TooManyRequests						
f. BAD_INV_ORDER	X					
3. Parameters Interface:						
a. ResultAttributes returned specifying available attributes	X	X	X	X		
b. BrowseImageReturned	X	X	X	X		

1. CACI only returns BadQuerySyntax.
2. IDEX does not check query since it only provides scripted query hits.
3. Server checked query syntax but did not throw any exceptions. They intended to but did not.

Subtest 28, Client Boolean_Query()

SUBTEST 28, CLIENT BOOLEAN_QUERY()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Provides valid Boolean query	X	X	X	X	X	
b. QueryId returned is used by get_results to retrieve data	X	X	X	X	X	
2. Method Exceptions:						
a. BadQuerySyntax	X	X	X	NT	NT	
b. BadAttribute						
c. BadQueryValue						
d. TooManyRequests						
e. BAD_INV_ORDER	1					
3. Parameters Interface:						
a. ResultAttributes specifies which attributes are to be returned	X	X	X	X	X	
b. BrowseImageReturned	X	X	X	X	X	

1. Used get_parameters() to check this exception.

Subtest 29, Server Polygonal_Query()

SUBTEST 29, SERVER POLYGONAL_QUERY()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Returns valid QueryId with data specified in polygonal query	X	X	X			
b. Polygon is in a single enclosed area	X	X	NI			
c. Polygon vertices are ordered in a counterclockwise direction	X	X	NI			
2. Method Exceptions:						
a. BadQuerySyntax (when illegal syntax)						
b. BadQuerySyntax (when improper operation applied)						
c. BadAttribute						
d. BadQueryValue						
e. TooManyRequests						
f. BAD_INV_ORDER						
g. BadCoord	X	NT	NI			
h. TooFewVertices	X	X	NI			
i. TooManyVertices	X	X	NI			
3. Parameters Interface:						
a. ResultAttributes are returned when query results retrieved	X	X	X			
b. GeographicDatum is set to “WGS84”	X	X	X			
c. BrowseImageReturned	X	X	X			

Subtest 30, Client Polygonal_Query()

SUBTEST 30, CLIENT POLYGONAL_QUERY()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Provides valid Boolean query and polygon	X	X	X			
b. Received QueryId is used by get_results to retrieve data	X	X	X			
c. Polygon is a single enclosed area	X	X	X			
d. Polygon has from 3 to MaxPolygonVertices vertices	X	X	X			
e. Polygon vertices are ordered in counterclockwise direction	X	X	X			
2. Method Exceptions:						
a. BadQuerySyntax						
b. BadAttribute						
c. BadQueryValue						
d. TooManyRequests						
e. BAD_INV_ORDER						
f. BadCoord	X	NT	NI			
g. TooFewVertices	X	X	NI			
h. TooManyVertices	X	X	NI			
3. Parameters Interface:						
a. ResultAttributes specified which attributes are to be returned	X	X	X			
b. Set GeographicDatum to “WGS84”	X	X	X			
c. BrowseImageReturned	X	X	X			

Subtest 31, Server Elliptical_Query()

SUBTEST 31, SERVER ELLIPTICAL_QUERY()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Returned QueryId used by get_results to return data	X	X	X			
b. Azimuth is measured in degrees from north of major axis	X	X	NI			
c. Major and minor axes are measured in meters	X	X	NI			
d. Circle query generated when major and minor axes are equal	X	X	NI			
2. Method Exceptions:						
a. BadQuerySyntax (when illegal syntax)						
b. BadQuerySyntax (when improper operation applied)						
c. BadAttribute	X	1	1			
d. BadQueryValue	X	1	1			
e. TooManyRequests						
f. BAD_INV_ORDER						
g. BadCoord						
h. BadEllipse	X	NT	NT			
3. Parameters Interface:						
a. Returned ResultAttributes specify available attributes	X	X	X			
b. Set GeographicDatum to “WGS84”	X	X	X			
c. BrowseImageReturned	X	X	X			

1. See notest 1,2 Subtest 27.

Subtest 32, Client Elliptical_Query()

SUBTEST 32, CLIENT ELLIPTICAL_QUERY()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Provides a valid boolean query and ellipse	X	X	X			
b. Returned QueryId used by get_results to retrieve data	X	X	X			
b. Azimuth is measured in degrees from north of major axis	X	X	X			
c. Major and minor axes are measured in meters	X	X	X			
d. Circle query generated when major and minor axes are equal	X	X	X			
2. Method Exceptions:						
a. BadQuerySyntax						
b. BadAttribute	X	NT	NT			
c. BadQueryValue	X	NT	NT			
d. TooManyRequests						
e. BAD_INV_ORDER						
f. BadCoord						
g. BadEllipse	X					
3. Parameters Interface:						
a. ResultAttributes specifies which attributes are to be returned	X	X	X			
b. Set GeographicDatum to “WGS84”	X	X	X			
c. BrowseImageReturned	X	X	X			

Subtest 33, Server Point_Query()

SUBTEST 33, SERVER POINT_QUERY()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Returns valid QueryId with data specified in point query	X	X	X			
2. Method Exceptions:						
a. BadQuerySyntax (when illegal syntax)	X	1	1			
b. BadQuerySyntax (when improper operation applied)	X	1	1			
c. BadAttribute						
d. BadQueryValue						
e. TooManyRequests						
f. BAD_INV_ORDER						
g. BadCoord	X	X	NT			
3. Parameters Interface:						
a. ResultAttributes are returned when query results retrieved	X	X	X			
b. GeographicDatum is set to “WGS84”	X	X	X			
c. BrowseImageReturned	X	X	X			

1. See note 1 Subtest 27.

Subtest 34, Client Point_Query()

SUBTEST 34, CLIENT POINT_QUERY()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. Provides a valid boolean query and geographic point	X	X	X			
b. Received QueryId used by get_results to retrieve data	X	X	X			
2. Method Exceptions:						
a. BadQuerySyntax	X	X	X			
b. BadAttribute						
c. BadQueryValue						
d. TooManyRequests						
e. BAD_INV_ORDER						
f. BadCoord	X	NT	X			
3. Parameters Interface:						
a. ResultAttributes specified which attributes are to be returned	X	X	X			
b. Set GeographicDatum to “WGS84”	X	X	X			
c. BrowseImageReturned	X	X	X			

Subtest 35, Server Get_Results()

SUBTEST 35, SERVER GET_RESULTS()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. QueryID is used to specify which results are to be retreived	X	X	X	X		
b. Number_of_hits_to_return provides number of hits returned	X	X	X	X		
c. Product reference returned for each product found	X	X	X	NI		
d. Returned attributes are in character form	X	X	X	X		
e. Attributes in QueryHit and QueryResults are in same order	X	X	X	X		
f. Returned browse_images are 1024x1024x8 or 256x256x8	X	NI	X	NI		
g. Last get_results may return less results than number_hits_to_return.	X	X	X	X		
2. Method Exceptions:	X					
a. BadQueryId	X	X	X	X		
b. BAD_INV_ORDER						
3. Parameters Interface: None						

Subtest 36, Client Get_Results()

SUBTEST 36, CLIENT GET_RESULTS()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. QueryId is used to specify results to be retrieved	X	X	X		X	
b. Number_of_hits_to_return specifies those hits to be returned	X	X	X		X	
c. Get_results can be called until number_of_hits_remaining=0	X	X	X		X	
d. Returned product references can be used to access products	X	X	X		NI	
e. Attributres are received in character form	X	X	X		X	
f. Attributes in QueryHit and QueryResult are in same order	X	X	X		X	
g. Returned browse_images are 1024x1024x8 or 512x512	X	NI	NI		NI	
h. Last get_results may return less results than number_hits_to_return.	X	X	X		X	
2. Method Exceptions:						
a. BadQueryId	X	X	X		X	
b. BAD_INV_ORDER						
3. Parameters Interface:						

Subtest 37, Server CA Free_Results()

SUBTEST 37, SERVER CA FREE_RESULTS()						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL		
1. Method Functionality:						
a. Returns valid QueryId with query results to free	X	X	X	X		
b. Returns hits for QueryId that are no longer accessible	X	X	X	X		
2. Method Exceptions:						
a. BadQueryId	X	X	X	X		
b. BAD_INV_ORDER						
3. Parameters Interface: None						

Subtest 38, Client CA Free_Results()

SUBTEST 38, CLIENT CA FREE_RESULTS()						
Criteria		Test Systems				
	Test Items	CACI	LMC-VF	LMC-FS	UCSB-ADL	PIPS
1. Method Functionality:						
a. QueryId specifies query results to free	X	X	X		X	
2. Method Exceptions:						
a. BadQueryId	X	X	NT		X	
b. BAD_INV_ORDER						
3. Parameters Interface: None						

Subtests 39 to 54

Not tested. Profile and Notification interface not tested as part of the validation testing.

Subtest 55, Boolean Query Syntax

SUBTEST 55,Boolean Query Syntax						
Criteria		Test Systems				
	Test Items	CACI	IDEX	UCSB-ADL	LMC-VF	
1. Method Functionality:						
a. Query Composition Types						
(1) Product Expression (2 or more Sum Expressions or Relation Expressions ANDed)	X	X	1	X	X	
(2) Sum Expression (2 or more Relation Expressions ORed), where attributes are same and operators are: =,<>,like, not like (ORed expressions will be enclosed in parentheses)	X	X	1	2	X	
(3) Relation Expression (attribute, operator, and constant)	X	X	1	X	X	
b. Operators						
(1) Numeric operators: =, <>, >=, <=, >, <	X	X	1	X	X	
(2) String operators: like, not like	X	X	1	X	X	
c. Constants						
(1) Numeric constants: integers, floating point numbers	X	X	1	X	X	
(2) Constant strings are enclosed in single quotations	X	X	1	X	X	
(3) Wildcard character %, within string constant, matches 0 or more characters	X	X	1	X	X	
2. Method Exceptions: N/A						
3. Parameters Interface: N/A						

1. IDEX server did not check query syntax.
2. ADL only allowed the operators to be the same with in an OR expression.